

## SEQUENCE LISTING

## (1) GENERAL INFORMATION:

- (i) APPLICANT: Wright, Jim A.  
Young, Aiping H.
- (ii) TITLE OF INVENTION: INHIBITING NEOPLASTIC CELLS UTILIZING THE RIBONUCLEOTIDE REDUCTASE UTR
- (iii) NUMBER OF SEQUENCES: 50
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: Kohn & Associates
  - (B) STREET: 30500 Northwestern Hwy.
  - (C) CITY: Farmington Hills
  - (D) STATE: Michigan
  - (E) COUNTRY: US
  - (F) ZIP: 48334
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible
  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
  - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER:
  - (B) FILING DATE:
  - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Kohn, Kenneth I.
  - (B) REGISTRATION NUMBER: 30,955
  - (C) REFERENCE/DOCKET NUMBER: 0227.00003
- (ix) TELECOMMUNICATION INFORMATION:
  - (A) TELEPHONE: (248) 539-5050
  - (B) TELEFAX: (248) 539-5055

## (2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 523 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (iii) HYPOTHETICAL: NO
- (vi) ORIGINAL SOURCE:
  - (A) ORGANISM: Homo sapiens
- (ix) FEATURE:
  - (A) NAME/KEY: 3'UTR
  - (B) LOCATION: 1..523
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GGAAAGACTT GGAAGAGACC AGCATGTCTT CAGTAGCCAA ACTACTTCTT GAGCATAGAT

|   |     |
|---|-----|
| AGGTATAGTG GGTTGCTTG AGGTGGTAAG GCTTGCTGG ACCCTGTTGC AGGCAAAAGG   | 120 |
| AGTAATTGAT TTAAAGTACT GTTAATGATG TTAATGATT TTTTTAAAC TCATATATTG   | 180 |
| GGATTTCAC CAAAATAATG CTTTGAAAA AAAGAAAAAA AAAACGGATA TATTGAGAAT   | 240 |
| CAAAGTAGAA GTTTAGGAA TGCAAAATAA GTCATCTTGC ATACAGGGAG TGGTTAAGTA  | 300 |
| AGGTTTCATC ACCCATTAG CATGCTTTC TGAAGACTTC AGTTTGTAA AGGAGATTAA    | 360 |
| GTTTTACTGC TTTGACTGGT GGGTCTCTAG AAGCAAAACT GAGTGATAAC TCATGAGAAG | 420 |
| TACTGATAGG ACCTTTATCT GGATATGGTC CTATAGTTA TTCTGAAATA AAGATAAAACA | 480 |
| TTTCTAAGTG AAAAAAAA AAAAAAAA AAAAAAAA AAA                         | 523 |

## (2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Homo sapiens

(ix) FEATURE:

- (A) NAME/KEY: 3'UTR
- (B) LOCATION: 1..1136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

|   |     |
|---|-----|
| ATGAACTGAA GATGTGCCCT TACTTGGCTG ATTTTTTTT TCCATCTCAT AAGAAAATC   | 60  |
| AGCTGAAGTG TTACCAACTA GCCACACCAT GAATTGTCCG TAATGTTCAT TAACAGCATC | 120 |
| TTTAAACTG TGTAGCTACC TCACAACCAAG TCCTGTCTGT TTATAGTGCT GGTAGTATCA | 180 |
| CCTTTGCCA GAAGGCCTGG CTGGCTGTGA CTTACCATAG CAGTGACAAT GGCAGTCTTG  | 240 |
| GCTTTAAAGT GAGGGGTGAC CCTTTAGTGA GCTTAGCACA GCGGGATTAA ACAGTCCTTT | 300 |
| AACCAGCACA GCCAGTTAAA AGATGCAGCC TCACTGCTTC AACGCAGATT TTAATGTTA  | 360 |
| CTTAAATATA AACCTGGCAC TTTACAAACA AATAAACATT GTTTTGTACT CACGGCGGCG | 420 |
| ATAATAGCTT GATTATTTG GTTCTACAC CAAATACATT CTCCTGACCA CTAATGGGAG   | 480 |
| CCAATTCACA ATTCACTAAG TGACTAAAGT AAGTTAAACT TGTGTAGACT AAGCATGTAA | 540 |
| TTTTTAAGTT TTATTTAAAT GAATTAAAAT ATTTGTTAAC CAACTTAAA GTCAGTCCTG  | 600 |
| TGTATACCTA GATATTAGTC AGTTGGTGCC AGATAGAAGA CAGGTTGTGT TTTTATCCTG | 660 |
| TGGCTTGTGT AGTGTCTGG GATTCTCTGC CCCCTCTGAG TAGAGTGTG TGGAATAAG    | 720 |
| GAATCTCTCA GGGCAAGGAG CTTCTTAAGT TAAATCACTA GAAATTAGG GGTGATCTGG  | 780 |
| GCCTTCATAT GTGTGAGAAG CCGTTTCATT TTATTTCTCA CTGTATTTTC CTCAACGTCT | 840 |

|   |      |
|---|------|
| GGTTGATGAG AAAAAATTCT TGAAGAGTTT TCATATGTGG GAGCTAAGGT AGTATTGTAA | 900  |
| AATTCAGT CATCCTTAAA CAAAATGATC CACCTAAGAT CTTGCCCTG TTAAGTGGTG    | 960  |
| AAATCAACTA GAGGTGGTTC CTACAAGTTG TTCATTCTAG TTTTGTGG TGTAAGTAGG   | 1020 |
| TTGTGTGAGT TAATTCAATT ATATTTACTA TGTCTGTTAA ATCAGAAATT TTTTATTATC | 1080 |
| TATGTTCTTC TAGATTTAC CTGTAGTTCA TAAAAAAAAA AAAAAAAAAA AAAAAA      | 1136 |

## (2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 20 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

|                       |    |
|-----------------------|----|
| GGATTTAGGT GACACTATAG | 20 |
|-----------------------|----|

## (2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 18 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

|                     |    |
|---------------------|----|
| TGAGAAAAGC GGGGCCTG | 18 |
|---------------------|----|

## (2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 21 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

|                         |    |
|-------------------------|----|
| TAAGTAACTG ATCGTGTGCT C | 21 |
|-------------------------|----|

## (2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 20 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

|                      |    |
|----------------------|----|
| GAGTTTCAT ATGTGGGAGC | 20 |
|----------------------|----|

## (2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

GAGTTTTCTC ATATGTGGGA

20

## (2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

AATGAACTGA AGATGTGCC

20

## (2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

AGGAATCTCT CAGGGCAAGG

20

## (2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

GCTTGATTAA TTTGGTTTCT

20

## (2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

GCCAGATAGA AGACAGGTTG

20

## (2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

ATCCTGTGGC TTGTGTAGTG

20

## (2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

TTTTTTTTTT CCATCTCATA

20

## (2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

CTGGCTGGCT GTGACTTACC

20

## (2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

ACTCACGGCG GCGATAATAG

20

## (2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

ATACATTCTC CTGACCACTA

20

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

GGTTGTGTTT TTATCCTGTG

20

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

GTTTTTATCC TGTGGCTTGT

20

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

GTGGCTTGTG TAGTGTCCCTG

20

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

CTGAGTAGAG TGTTGTGGGA

20

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

GTGTTGTGGG ATAAAGGAAT

20

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

TCTCACTGTA TTTTCCTCAA

20

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

GGTGTAAGTA GGTTGTGTGA

20

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

ATAAAGGAAT CTCTCAGGGC

20

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

TACTCACGGC GGCGATAATA

20

## (2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

ATAGCAGTGA CAATGGCAGT

20

## (2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

CTTACCATAG CAGTGACAAT

20

## (2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

GCTACCTCAC AACCAGTCCT

20

## (2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

ACTTGGCTGA TTTTTTTTTT

20

## (2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

CCTGGCTGGC TGTGACTTAC C

21

## (2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

ATACATTCTC CTGACCACTA A

21

## (2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

GTAGTATCAC CTTTGCCAG AA

22

## (2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

GGTGCCAGAT AGAAGACAGG TTG

23

## (2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

CTAAATGAAC TGAAGATGTG CCCT

24

## (2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

GCTTGATTTA TTTGGTTCT ACAC

24

## (2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

ATAAAGGAAT CTCTCAGGGC AAGGA

25

## (2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

ATTTTTTATT ATCTATGTTC TTCTA

25

## (2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

CCCTTACTTG GCTGATTTT TTTTCC

27

## (2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

CTGAGTAGAG TGTTGTGGGA TAAAGGAAT

29

## (2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 38 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

AAGCCGTTTC ATTTTATTTC TCACTGTATT TTCCCTCAA

38

## (2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

TAGTTTTGTT TGGTGTAAAGT AGGTTGTGTG AGTT

34

## (2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 37 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

ACCTGTAGTT CATAAAAAAA AAAAAAAA AAAAAAA

37

## (2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 39 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

GGTTGTGTTT TTATCCTGTG GCTTGTGTAG TGTCCCTGGG

39

## (2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

AGTGGGTTTG CTTGAGGTGG

20

## (2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

GGCTTTGCTG GACCCTGTTG

20

## (2) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

AAAAAAAAGAA AAAAAAAACG

20

## (2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

AGTAGAAGTT TTAGGAATGC

20

## (2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

GTTTCATCAC CCATTTAGCA

20

## (2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

TTTACTGCTT TGACTGGTGG

20

## (2) INFORMATION FOR SEQ ID NO:50:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

TTAAGACTTT TTACGCGATT C

21